

## Value and Benefit page

The data collected by current and future LOCAD instruments will provide valuable information for multiple NASA customers in the following areas

- Astronaut Risk Reduction
  - Ensure medical Water for Injection (WFI) is endotoxin-free
  - Monitor cleanliness of internal surfaces of spacecraft
  - Identify and quantify microbial molecules or other biochemicals beyond Earth prior to and during astronaut contact
  - Determine biocide levels in potable water\*
  - Determine if food is spoiled and unsafe for eating\*
  - Characterize blood, saliva, and urine to diagnose astronaut illnesses\*
- Planetary Protection
  - Ensure spacecraft landing on moons/planets beyond Earth have acceptable levels of cleanliness before leaving Earth
  - Determine cleanliness/contamination levels of spacecraft extra-vehicular activities (EVAs)\*
  - Characterize and monitor microbial contamination at lunar and Martian outposts\*
- Astrobiology
  - Test life detection protocols and collection methods in analogue environments on Earth
  - Perform life detection experiments on other planets to identify certain biochemical molecules\*
  - Characterize life beyond Earth\*
- Infrastructure Risk Reduction
  - Mitigate fungal damage to materials
  - Characterize chemicals involved in surface corrosion\*

\* Future technology capabilities